

PHOTOGRAPHING THE AUGUST 21, 2017 TOTAL SOLAR ECLIPSE



The United States will experience its first total solar eclipse since February 26, 1979. All of the Continental United States will experience at least a significant partial solar eclipse. For those fortunate enough to live along the narrow track of totality, or travel to the path of totality, up to 2 minutes and 40 seconds under the shadow awaits viewers.

Regardless if you are going to travel to the path of totality or observe the partial eclipse from your home, school, or work, you might want to try to photograph the eclipse.



VIEWING SAFETY

You have several options to observe and photograph the partial phase of the eclipse, from a telescope with a solar filter to a telescope or binoculars which project the image onto a surface. **Do not forget SAFETY! The unaided Sun, whether partially eclipsed or not, will do the damage.** Totality itself will not harm your eyes or camera. Order both eclipse glasses and camera/telescope filters well in advance; just prior to the eclipse there will be a big demand.

← Viewing safety is paramount, from a proper telescope filter to

Equipment for Eclipse Photography

Equipment	Notes
Smartphone, Tablets	These devices are good for taking photos of people and the scenery in your area, but are not good for photographing the eclipse itself. As the eclipse gets deeper, shadows get sharper, making for neat photos. And remember it will be dark during totality; no strobes!
Point and Shoot Cameras	Point and Shoot Cameras come in all types of features. You can get some good photos using these cameras, from people to the surrounding area to the eclipse. Use the optical zoom when photographing the eclipse for best results. Make certain the strobe is disabled; you do not want to be flashing other people during totality.
DSLR Cameras; <i>Partial & Total Phases</i>	Overall the best choice for photographing the eclipse. A zoom lens up to 300 mm gives good results. Use manual focus only. You should also plan on not using the auto exposure feature on the camera. You will get the best results with the camera set up on a tripod, especially if you are using a zoom lens.
Video Cameras; <i>includes Action Cams</i>	Video can be used to capture the Moon's shadow, colors around the horizons, even people and their reactions – perhaps the best use!
Telescope	You can couple your telescope with a DSLR camera; some will take photos through the telescope with a smartphone. Test your telescope-camera system prior to the eclipse...
Tripod or Mount	Hand-holding a camera to photograph the eclipse is challenging, even for the best of eclipse photographers ... a stable tripod is important, especially for longer exposures.
Batteries	Have fully charged batteries; extra fully-charged batteries are highly-recommended.
Memory Cards	Make sure your camera's memory card has plenty of room. You might also have an extra memory card. If you happen to be in the path of totality, check the available space on your memory card before totality to assure you have enough space during totality
Flashlight	Many seasoned eclipse chasers keep a red light flashlight close by during the eclipse. This is useful if you need a light during totality, or even in a deep partial solar eclipse.



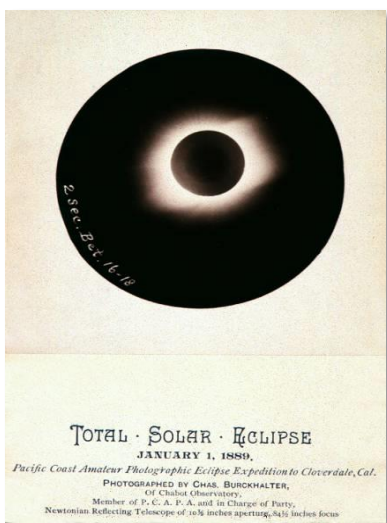
Some Important Photographic Tips

- Get your solar filters well in advance, if you already do not have them.
- Turn off your camera strobe! The strobe will take over 8 minutes to reach the sun, and totality will be over.
- The Full Moon is a great time to check out your equipment and exposures, especially for those in totality.

Eclipse Photography – In Closing...

You should consider the question: *do I really want to photograph the eclipse?* The partial stages offer plenty of time to photograph. But for those who will experience totality will find it's very short – 2 minutes and 40 seconds maximum for this eclipse – and if this is your first eclipse, you might want to consider looking at totality.

If you decide to photograph the eclipse, check out your equipment well in advance, from your camera's focus to exposure. Focus is one of the most-critical factor to assure you take good pictures. Understand your camera's field of view; you do not want to miss out coronal features unless you are planning high-magnification imaging. Video will also provide a way to capture the eclipse. Time lapse images of people – which also show changes in sunlight – can be fascinating.



Many first time imagers will set their cameras to auto focus (if using the camera's lens instead of a telescope-camera system) and auto exposure. The camera will 'look' for focus and have difficulties finding the focus. This is not something you want to be dealing with during totality. You should pre-set the camera at manual focus and infinity; just make certain the lens infinity setting is in fact at infinity. And many will bracket their exposures, that is, take pictures at different speeds like 1/15, 1/30, 1/60, 1/125, 1/250, 1/500, 1/1000 second.

Seasoned eclipse imagers and photographers make certain they have fully-charged and reliable batteries and plenty of space on memory cards. Have extra batteries and memory cards available; you do not want to shoot so many partial phase photos that you discharge your battery or use all available memory card space. Many prefer to image in the highest quality possible; usually 'raw.'

← January 1, 1889 Total Solar Eclipse. Charles Burckhalter, Chabot Observatory



5/20/12 Annular



3/29/06 Total; 5 stacked



6/21/01 Total; 10 stacked



7/11/10 Total; 3rd Contact

Photos by Dr. Mike Reynolds; all digital except the June 21, 2001 total solar eclipse

Looking UP! Finally make certain you look at the eclipse! If you are fortunate enough to be in the path of totality, search for planets and stars right before totality. Note the shadow as it approaches you; look for the sunset-sunrise effect; horizon colors. Look at Baily's beads and the diamond ring, the signal that totality has arrived.

Dr. Mike Reynolds saw his first total solar eclipse March 7, 1970. He has lead numerous expeditions and observed 18 total solar eclipses – in 18 attempts; observing from land, sea, and air. Reynolds' observations and photographs have been published in numerous places, including his book *Observe Eclipses and Astronomy*. Reynolds is Professor of Astronomy at Florida State College and the Association of Lunar and Planetary Observers' Eclipse Coordinator.

